THYROID GLAND ABLATION*

ITS USE FOR CONGESTIVE HEART FAILURE AND ANGINA PECTORIS, WITH A REPORT OF FIVE CASES

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SINCE the introduction of total ablation of the thyroid gland for congestive heart failure and angina pectoris, there has been much contradictory comment. The encouraging reports of Doctors Blumgart, Levine, and Berlin have not been entirely duplicated in other clinics. This new therapeutic procedure is at present receiving clinical trial in various centers. The ultimate acceptance or rejection of removal of the thyroid gland in the treatment of this particular group of patients will depend on the final interpretation of the reports from these various centers. The present report is merely the presentation of our results in the application of total ablation of the thyroid gland in five patients. It will not attempt to analyze the physiologic, biochemical, or theoretical aspects involved in this study.

CLINICAL MATERIAL FOR THIS STUDY

Since first undertaking this study in January, 1934, we have seen approximately one hundred and fifty patients suffering from cardiac disease. Of this group we have selected five for the application of total thyroidectomy. The fact that only these few cases were considered suitable for surgery emphasizes the extreme limitations of this new procedure. In the large number of cardiac patients our present medicinal armamentarium is entirely, or at least partially, effective in sustaining a sufficient cardiac reserve. It is in the remaining cases that the application of this newer surgical measure is to be considered. It is in these patients, in whom all therapeutic measures have failed to increase adequately the cardiac efficiency to a degree comparable to the demands placed upon it, that we turn to a method for reducing the load upon the circulatory mechanism. We are thus dealing with a very select group, a group who, according to the therapeutics heretofore available, were doomed to an early death. It is only a portion of this group who may expect beneficial results from removal of the thyroid gland. It is obvious that in the individual with a complete loss of cardiac reserve, even under a markedly diminished load (bed rest), no satisfactory result can be expected from a further slight reduction of the metabolic requirements. Thus, it is apparent that these cardiac invalids, whose lack of reserve necessitates constant bed rest, are unsuited to this new procedure. The greater number of pathologic affections of the heart are progressive. The lessening of the burden placed upon the heart (as by removal of the thyroid gland) may only partially limit this progression. This fact places yet another restriction upon our selection of patients. It necessitates a heart reserve which will permit efficient cardiac function with the passage of years, in spite of the naturally progressive character of the pathologic process in the heart. A consideration of the above facts emphasizes the limitations of the field of usefulness of removal of the thyroid gland in cases of congestive failure.

OPERATIVE PROCEDURE

In carrying out the operative procedure, we have largely followed the technique as recommended by Berlin in his original communication. We have found, however, that cervical block anesthesia has, in our hands, been superior to general or local infiltration anesthesia.

The following are the brief case histories of the five patients upon whom we have performed total ablation of the thyroid gland.

CASE 1.—A. Du B., white, male, aged 53 years, was seen in this hospital on four occasions. At each of these admissions, patient was suffering from congestive heart failure. On his last entry the patient showed marked pitting edema of the lower extremities, generalized anasarca, enlarged liver, and orthopnea. Auricular fibrillation was present. Past history was insignificant; there was suggestive history of rheumatic fever in childhood. Patient's occupation was that of laborer. Since onset of present illness two and a half years previous, there has been a limitation of the patient's capacity for work. For the six months preceding his last entry into the hospital he had been unable to perform any physical labor. A diagnosis of auricular fibrillation, and mitral stenosis and insufficiency on a rheumatic basis was made. Because of the inability of the usual therapeutic measures to maintain the cardiac balance, total thyroidectomy was decided upon. At the time of operation on January 19, 1934, the patient's condition was considerably improved, although he was unable to arise from bed. Basal metabolic rate was normal. Following operation the patient became progressively worse. Edema returned to the lower extremities, dyspnea became marked, heart action became extremely rapid and weak. The patient died of cardiac failure on the third postoperative day.

Comment: It was following our failure in this case that we began to appreciate the extreme limitations of this new therapeutic measure. This first mortality was undoubtedly due to improper selection of the case. The cardiac reserve was so depleted that the added shock and burden of surgery was too great. In order to be eligible for this operation the cardiac sufferer must have such a cardiac reserve as will enable him to accomplish certain limited activities. The exact definition of these reserves is at present uncertain. It would seem, however, that as a minimal requirement, the subject must possess such cardiac reserves as will enable him to be ambulatory.

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CASE 2.—A. P., white, male, aged 53 years, was entered in this hospital on three occasions, each entry being for congestive heart failure. The patient showed marked pitting edema of lower extremities, right pleural effusion, orthopnea, and enlarged liver. Wassermann test had been positive, but patient had received adequate antiluetic treatment. Blood pressure, 130/80. Diagnosis was made of congestive heart failure, as result of double mitral disease. Basal metabolic rate

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was normal. Past history revealed single indefinite attack of rheumatic fever in childhood. The patient was a rancher, and before onset of present illness a year previous, had been engaged in hard physical labor. The usual medicinal measures had proved unsuccessful in maintaining an adequate cardiac balance. Because of this, total ablation of the thyroid gland was suggested. At time of operation on March 23, 1934, patient was ambulatory and able to perform slight tasks on the ward. Following surgery there was uneventful convalescence.

Since time of operation this patient has been receiving maintenance doses of digitalis, and has been enabled to return to moderate physical activity on his ranch. He has shown no symptoms of congestive heart failure. The hypothyroid state has caused no undesirable symptoms other than an increasing obesity, which was controlled by small doses of thyroid extract. At the present time, thirteen and a half months after operation, the patient's condition is good. His B. M. R. is minus 29. The results in this case are extremely satisfactory. But for this operation, we feel this patient would have been unable to return to any useful occupation without the production of congestive failure. The production of a hypothyroid state has not resulted in any deleterious symptoms.

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Case 3.—W. P., Italian, male, aged 45 years, was admitted to the hospital on May 8, 1934. At time of entry patient was suffering from congestive heart failure, severe angina pectoris, and hypertension. History revealed presence of severe anginal attacks of eight months' duration, and congestive heart failure of four months' duration. The patient had a single mild attack of acute rheumatic fever. He had been engaged in strenuous labor since youth. Attacks of severe anginal pain had necessitated abstinence from hard labor, and congestive failure had made bed rest necessary. Physical examination revealed slight pitting edema of lower extremities, enlarged liver, and orthopnea. Blood pressure was 183/100. Basal metabolic rate was normal. A diagnosis of hypertension, angina pectoris, and double mitral disease with congestive failure on rheumatic basis was made. At time of operation on May 18, 1934, the patient was able to be up and about. He could perform slight physical exertions without cardiac embarrassment, although severe anginal attacks still persisted. Convalescence following total ablation was complicated by partial atelectasis of right lung. The patient recovered satisfactorily, and was discharged June 1, 1934, on maintenance dose of digitalis.

Comment: Since operation twelve months ago, patient has had no recurrence of congestive failure although engaged, contrary to our advice, in strenuous labor. Severe anginal attacks have never recurred, notwithstanding patient has occasionally had slight substernal discomfort. The place of total thyroidectomy in the treatment of angina pectoris is still in question. The reports of observers in the East are indeed encouraging. But whether this procedure will supplant our other methods of surgical interference in angina pectoris is yet to be determined. No abnormal symptoms of the hypothyroid state have appeared other than mild obesity. This has been controlled by small doses of thyroid extract.

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Case 4.—N. S., white, male, aged 58 years, was admitted to this hospital on three occasions. On each of these entries the patient showed marked congestive heart failure. Past history revealed the presence of congestive symptoms for the past four years. There was no definite history of rheumatic fever. The patient was a farmer and had been engaged in moderately strenuous labor. Physical examination revealed marked pitting edema of the lower extremities, generalized anasarca, orthopnea, enlarged liver, and Cheyne-Stokes' respiration. The x-ray showed a markedly enlarged heart whose transverse diameter measured 19.5 centimeters, approximately 64 per cent of the interthoracic diameter. An electrocardiograph gave definite evidence of an old coronary occlusion, left branch. Blood pressure was 124/64. Basal metabolic rate was normal. Diagnosis was made of double mitral, and double aortic valvular disease with congestive heart failure on rheumatic basis. Following usual medicinal therapy, patient improved sufficiently to permit the performance of slight tasks about the ward. Total thyroidectomy was decided upon and was performed on September 1, 1934. Convalescence was uneventful and patient was discharged on October 18, 1934. He was given maintenance dose of tincture digitalis.

Comment: After discharge, this patient was fairly comfortable for seven months, and was able to do light work. He then reëntered the hospital with signs and symptoms of a recurrence of congestive failure. He has now been in bed for one and one-half months, without improvement. It is probable that in this case the pathologic process of the heart was rather rapidly progressive, and that the heart has now reached the stage where it is unable to meet the metabolic demands of the tissues, even though this demand has been greatly decreased by the hypothyroid state.

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Case 5.—A. G., white American, male, aged 52 years, was seen in this hospital on three occasions. The last entry, November 12, 1934, was for congestive heart failure. At this time the patient complained of dyspnea, cough, irregular heart action, slight edema of ankles, and pain in the left chest. He was a farmer. The past history revealed acute rheumatic fever at twenty years of age. Congestive heart failure was first noted in 1928. Since that time the patient has had about five attacks of congestive heart failure. He has also had bronchial asthma for about ten years. Diagnosis of congestive heart failure with auricular fibrillation on a rheumatic double mitral disease was made. Bronchial asthma was also present. Blood pressure was 123/76. Serology was negative. B. M. R. was normal. Complete thyroidectomy was decided upon because of failure of usual therapy in maintaining suitable cardiac reserve. This was performed on December 26, 1934. Patient had uneventful convalescence, and was discharged with maintenance dose of tincture of digitalis on January 6, 1934.

Comment: Since time of operation the patient has been free of any untoward cardiac symptoms. He has had one attack of bronchial asthma, for which he was hospitalized for a period of about two weeks. The hypothyroid state has produced no distressing symptoms. The patient has not as yet returned to active physical exertion.

COMMENT

We have merely attempted, in the discussion of these five patients, to present our experience in the application of total thyroidectomy in certain types of heart disease. We wish to add these few case reports to the rapidly accumulating literature on this subject. The correct evaluation of this new procedure will depend upon the final analysis of all the reports from the various centers. In order that these reports may be suitable criteria upon which to base final judgment, we wish to emphasize the extreme care necessary in the selection of these cases. Improper selection of patients will bring undeserved discredit to this new surgi-

cal procedure. We feel that the experience gained thus far in the application of total thyroidectomy warrants its further trial.

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DISCUSSION

ARTHUR L. BLOOMFIELD, M.D. (2398 Sacramento Street, San Francisco).—Everyone has been interested in the work of Blumgart and his associates on total thyroidectomy for heart disease; the results reported by the Boston group being undoubtedly impressive. It must be remembered, however, that this work has been done by experts in a large metropolitan clinic, and the question at issue really is whether the general practitioner, who is neither a cardiologist nor a specialist in thyroid surgery, can serve his patients equally well. The careful work of Doctors Pettis and Sorsky is an excellent example of what the procedure may be expected to do in the hands of doctors as a whole. They wisely emphasize the point at issue: do the benefits outweigh the hazards of operation and the difficulties of controlling postoperative myxedema? It must be recalled that extirpation of the gland is only the beginning; many of the patients may require a delicate and difficult adjustment of thyroid dosage to preserve lowered metabolism, and at the same time to avoid the discomforts of extreme hypothyroidism. In our experience the choice of subjects is not easy. One hesitates to proceed when the patient is doing fairly well with ordinary cardiac therapy; whereas if he is in extremis, the hazards of operation are too great. We doubt if total thyroidectomy will ever have a very wide application in the treatment of heart failure.

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WILLIAM DOCK, M.D. (2160 Pacific Avenue, San Francisco).—Doctors Pettis and Sorsky present a report of carefully conducted exploration of a new therapeutic method. The thyroidectomies performed for heart disease must, like those for hyperthyroidism, produce a permanent and marked fall in basal metabolism. A slight or a temporary fall indicates failure, yet the parathyroids and recurrent laryngeal nerves must be conserved. It is apparent that the authors have correctly applied the method to produce these ends, and that in three of five cases the result justifies the treatment. Improvement, which could scarcely be expected from any other treatment, has followed. In our clinic only three patients, all suffering from angina, were found to be good candidates for this procedure. The basal rate on one was normal, and the operation was therapeutically a complete success; in the other two the basal rates were found to be minus 23 and minus 30 per cent, and the operation was not performed. It is my feeling that this treatment will be found of value in angina and in mitral stenosis, but only a small per cent of those with heart disease will be suitable subjects for thyroidectomy. In those only who are able to be comfortable with bed-rest thyroidectomy, this must be considered as offering some hope of a more prolonged active life.

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R. DUFFICY FRIEDLANDER, M.D. (University of California Medical School, San Francisco).—In the small number of cases selected by Doctors Pettis and Sorsky, the results are comparable to those obtained elsewhere following total ablation of the thyroid gland for heart disease.

Thyroidectomy for heart disease is still being tried by our various confrères, as evidenced by a recent paper by Bankoff to London and Manchester (Arch. f. Klin. Chir., February 20, 1935), who not only reports excellent results in cardiacs following total thyroidectomy, but equally successful results following subtotal thyroidectomy in patients with paroxysmal tachycardia, neurasthenia and cardiac asthma. The latter procedure must certainly be looked upon with question at the present time.

The results reported by the original workers in this field (Blumgart, Levine, Cutler, Berlin, et al.) have been very encouraging in their follow-up studies for the first year, and it will undoubtedly be very enlightening to see the results of further follow-up examinations in the future. At the present time, Levine is certainly not so enthusiastic about this form of treatment in congestive failure as he was originally. He believes that no cardiac should be subjected to the operation who can be made comfortable otherwise. In the group of cases that I had the opportunity of seeing at the Peter Bent Brigham Hospital during the years 1932 to 1934, the most gratifying results were obtained among patients with severe uncomplicated angina pectoris. In many, the relief from pain was dramatic. A recent communication from Dr. E. C. Eppinger, a former associate at the Peter Bent Brigham Hospital, informs me that some of these patients are having recurrences of substernal distress after two years. Nevertheless, if the procedure can provide the patient a comfortable life for two years, it must still be considered a valuable form of therapy when other measures fail.

These results again must raise the controversy as to the mechanism of relief of pain in angina. Is this return of pain due to regeneration of the previously damaged sympathetic nerve fibers, or is it due to the inherent progress of the basic pathologic process? This question can only be answered by further observations and investigations on the part of those interested in this work.

A most important factor that is likely to be neglected and must be seriously considered, is the after-care of these patients. One must continue to treat them as cardiacs, and, additionally, one frequently must treat the unpleasant sequelae of myxedema, despite the minimization of these symptoms in the literature. This involves a nicety of therapeutic management, which must be balanced between a return of congestive failure as a result of overmedication with thyroid substance or hypothyroid symptoms due to undermedication. In addition, it must be remembered that the basal metabolic rate in hypothyroid or myxedematous individuals may not be very low in the presence of dyspnea or a diminished vital capacity.

It seems apparent that, as we see and hear more of the results of total thyroidectomy for cardiac disease, the limitations of this form of therapy have become more pronounced. In the future, the selection of suitable patients will probably be narrowed down to those individuals with angina pectoris, without other cardiac complications, who would be able to lead a useful life in the absence of disabling anginal pain. With regard to patients in congestive failure, one can only say that in this group the selection of proper cases is much more difficult and demands a high degree of clinical judgment.

CORPORATIONS CANNOT PRACTICE MEDICINE IN CALIFORNIA*

RECENT OPINION HANDED DOWN BY A CALIFORNIA DISTRICT COURT OF APPEAL

Explanatory Note.—On December 12, 1935, the District Court of Appeal, First Appellate District, handed down an opinion confirming the basic points included in previous California Superior Court actions in which the right of a corporation to practice medicine had been brought up for consideration. The present opinion on that point by a higher court, with its references to the activities of a corporation seeking approval of the Insurance Commissioner of the State of California of policy forms and thus to engage in the business of selling "health insurance policies" that presumably provide medical service and hospitalization benefits merits publication space among the original articles, in order to give it a place in the literature. The editor is indebted to Mr. Hartley F. Peart, general counsel of the California Medical Association for early proof sheets of the

* A Superior Court opinion involving this principle appeared in the December, 1935, issue of CALIFORNIA AND WESTERN MEDICINE, page 460.